We claim:

1. A process for removal of the esterification catalyst by separation from a crude plasticizer ester obtained by reacting a dicarboxylic acid with C_8-C_{13} alcohols, by treating the crude ester with an aqueous alkali solution in the range from 10 to 100°C and then separating the aqueous alkaline phase comprising the hydrolyzed esterification catalyst by gravitational phase separation, which comprises treating the crude ester, prior to or during the phase separation, with a salt of a di- or polyvalent metal, or with a mixture of these salts.

2. A process as claimed in claim 1, wherein the esterification catalyst used comprises a Lewis-acid compound of an element of the 4th main group or of the 4th transition group of the Periodic Table of the Elements.

3. A process as claimed in claim 1 or 2, wherein the esterification catalyst used comprises a compound of titanium.

4. A process as claimed in any of claims 1 to 3, wherein, prior to the gravitational phase separation, the crude ester has a content of from 0.1 to 5% by weight of monosalt of dicarboxylic half-ester.

5. A process as claimed in any of claims 1 to 4, wherein the salt used of a di- or polyvalent metal comprises a calcium salt or aluminum salt.

6. A process as claimed in claim 5, wherein use is made of an aluminum salt.

7. A process as claimed in claim 6, wherein the amount of aluminum salt used is from 0.05 to 30 mmol per liter of the aqueous alkaline phase.